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Title : THE EFFECTS OF PREY AVAILABILITY ON PUP MORTALITY AND THE TIMING OF BIRTH OF SOUTH AMERICAN SEA LIONS OTARIA FLAVESCENS IN PERU

Category : Ecology

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Abstract : The Peruvian upwelling system is one of the most unpredictable productive marine ecosystems of the world. Availability of forage fish to apex predators can vary by orders of magnitude between El Niño (low abundance, 1997-1998) and La Niña (high, 1998-2001) events. Reproductive strategies that might be invoked by a major predator such as the South American sea lion to contend with such dramatic changes in prey availability are poorly understood and were investigated at the Ballestas Islands, Peru (13°44'S, 76°24'W) during six breeding seasons (Jan-Mar, 1997-2002). Daily counts of live and dead pups showed pup mortality ranged from as little as 13% before El Niño to 100% during El Niño. The peak of mortality occurred around the peak of pupping in all years. Numbers of pups born, the timing of pupping and rates of mortality were all correlated with the availability of food (estimated from anchovy stock assessments). No relationship was found between pup mortality and the numbers of pups born or with the number of adult females on shore. Premature births during years of low food availability were noted in unusually high numbers starting five months prior to the pupping season. Starvation was the major cause of pup mortality during El Niño. Timing of births and rates of pup mortality were also influenced by events from prior years. For example, females tended to give birth later in the season after a year of low food availability, and earlier when food availability was high. Changes in social dynamics caused by high adult mortality during the 1997-1998 El Niño also resulted in high levels of pup mortality in subsequent years when food availability was high (due to aberrant adult behavior). Overall, it appears that South American sea lions contend with shortages of prey by aborting their fetuses, altering their timing of birth, or failing to adequately provide milk for their pups. However, severe shortages that kill adults can negatively alter social dynamics in subsequent years and further impede population recovery.